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FINANCIAL ANALYSIS IN SOURCE SELECTION:  
A CASE STUDY

STUDY PROJECT REPORT  
PMC 76-1

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FORT BELVOIR, VIRGINIA 22060

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# FINANCIAL ANALYSIS IN SOURCE SELECTION:

## A CASE STUDY

Study Project Report

Individual Study Program

Defense Systems Management School

Program Management Course

Class 76-1

by

Daniel Steven Ramelli III  
LT SC USN

May 1976

Study Project Advisor  
Dr. Benjamin Rush

This study project report represents the views, conclusions and recommendations of the author and does not necessarily reflect the official opinion of the Defense Systems Management School or the Department of Defense.

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## EXECUTIVE SUMMARY

The purpose of this project has been to develop a case situation which would motivate a discussion and understanding of the role of financial analysis as a decision consideration in the source selection process. Although the case developed is fictional, my recent participation in a situation of this nature helped to create a case that is a realistic environment for the practical application of analysis techniques. The financial data provided in the case has been extracted from public sources and represents actual financial statistics of well-known aerospace defense contractors. The tasks as well as the areas for consideration within the case represent real-life concerns which potential project management personnel may face in the source selection process.

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## I. INTRODUCTION

The general purpose of this paper and the effort preceding it have been to explore the role of financial analysis as a decision consideration in the source selection process. The specific goals of this project were to develop a teaching vehicle which would motivate discussion and understanding of the role of financial analysis in source selection as well as to provide a medium for the practical application of analysis techniques.

The medium selected to achieve these goals was a case study representing a fictional yet true-to-life source selection situation. The firms chosen for this fictional situation are well known aerospace corporations, and the data provided was obtained solely from public sources. My recent participation in a situation of this nature provided me with the experience and insight necessary to feel confident that the following case represents a realistic setting for the discussion of the role of financial analysis in the source selection process.

## II. THE CUTLASS MISSILE

In March of 1974, the Chief of Naval Operations directed a study to determine the feasibility of developing a weapons system to protect high value assets (i.e. carrier, cruiser, etc.) from all air strikes by both aircraft and missiles. The Navy's initial operational requirement defined the contemplated system as one which could:

- track and attack multiple air targets
- be used against high and low altitude targets
- possess a fifteen-second reaction time (i.e. detect and launch)
- be effective between 2 to 100 miles
- destroy air targets of the 1980's and 1990's

In general, as the CNO had stated, "We need to develop and deploy the air defense weapon of the century prior to 1980."

Captain Ben Roland had been selected to chair the study group in 1974. His experiences both as a weapons officer and later as skipper of two of the Navy's finest guided missile cruisers as well as a tour in the early TARTAN Missile Project offices provided him with a full understanding of the total weapons system environment.

Shortly after submission of the study group's report in June, 1974, Captain Roland was selected as project manager for the newly created CUTLASS Missile Project. During the next two years, the CUTLASS

project office worked diligently towards completion of the concept formulation phase.

In May, 1976, Lieutenant Hal Thompson reported to the CUTLASS Missile Project Office as Assistant Business Manager. (See Figure 1.) He was initially briefed by his immediate superior, Commander Tom Scott.

"Hal, right now we're in the middle of the source selection process," Commander Scott began. "In February we issued an RFP which contemplated award of two cost-type contracts for the competitive prototyping approach to be used during the validation phase. We have received four proposals, and the Source Selection Evaluation Board (SSEB) is reviewing them now. I feel that each of the two contracts will be worth approximately \$25 million, and will take one year to complete. That might not seem very large, but the follow-on development and production contracts could total \$1.8 billion. Here's what our funding profile looks like." (See Figure 2.)

"How is the evaluation process going?" Hal asked.

"Almost all of the evaluation is completed, Hal," commented Commander Scott. "We will be presenting to the Source Selection Advisory Council (SSAC) next week. In fact, we are holding a coordinating meeting with Captain Roland on Tuesday. Why don't you sit in? I think it would help get you up to speed."

The coordinating session was attended by all key project and SSEB personnel. After lengthy discussions on the areas of technical performance, ILS, scheduling, testing, and cost, Captain Roland asked Commander Scott how the management and resources areas looked.

# CUTLASS MISSILE PROJECT ORGANIZATION

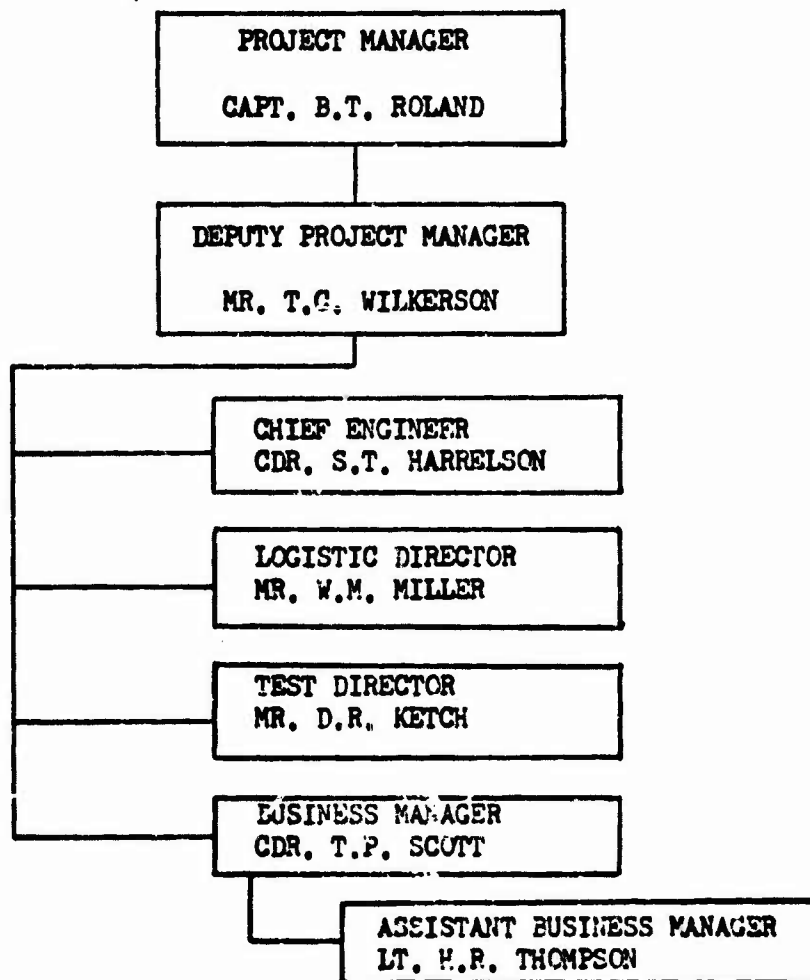


FIGURE 1



# CUTLASS MISSILE FUNDING PROFILE

	COST TO DATE	FISCAL YEAR					81	OUT YEARS	TOTAL PROGRAM
	76	77	78	79	80				
RD&E	5	8	50	150	250		0	463	
PROCUREMENT			2	20	612	460	315	1409	
OPERATION AND SUPPORT			2	5	31	35	815	888	
LIFE CYCLE COSTS	5	8	50	154	275	643	495	1130	2760

FIGURE 2

"Captain, we will be finished with all areas except financial resources by tomorrow," Commander Scott noted.

"That's fine, Tom, but what's the hang-up with the financial area?" Captain Roland asked.

"Well, Captain, there's really nothing to worry about. These are billion-dollar firms that we're dealing with, and none of them is likely to have any problems," replied Commander Scott.

Captain Roland winced. "Three months ago I would have agreed with you, Tom, but two things have changed my mind. First, several recent business articles indicate severe problems in the aerospace industry, and we certainly don't want to be contracting with one of the 'severe problems'. Secondly, Captain Benson, Project Manager of the THRUSH Air-to Air Missile Project, was eaten alive on that assumption during his source selection process last month. I think Congress, OSD, and the Source Selection Authority expect us to keep our eyes open in this area, especially during this era of the 'Government Guaranteed Loan'."

At this point Commander Sam Harrelson, the chief engineer, stated, "Tom, in addition to what the captain has said, the technical scores are coming out so close that something as important as this might swing the source selection decision."

Commander Scott agreed. "Captain, I'll put Lieutenant Hal Thompson on this right away, and we'll have an in-depth analysis for you to review by Friday."

Later, back in his office, Commander Scott said, "This appears to be an important issue, Hal. I'm sorry you've been thrown into the fire so soon, but I don't have anyone else who's free right now. I

have accumulated some data that you can have now (see Attachment A), but you might need to dig up some more later. If you have no questions, I would like to see the evaluation by Thursday afternoon."

**TASK:** Prepare a presentation of your evaluation of the four prime contractors for this contract and follow-on contracts. In the presentation be sure to include as a minimum:

--your basis or framework for analysis

--a numerical raw score using the range 0 through 10 (with 0 as unacceptable)

--a ranking of offerors

--recommendations such as selection preference, post-award monitoring and further data needed

--vu-graphs for the presentation

AREAS FOR CONSIDERATION:

1. Aside from in-house talent, what other alternative talent could Commander Scott have used to develop an evaluation of financial resources?
2. How would a different situation (i.e. type of procurement, acquisition phase, or size of firm) affect the importance of this analysis?
3. What is your opinion of the meaningfulness of this analysis to the Project Manager or Source Selection Authority?
4. If you could have made an input to the development of the Request for Proposal, would you have asked for any information from the offerors?
5. What other sources of data or information would you have used?

Attachment A

FINANCIAL DATA

NOTE: All data and quotations were extracted from Standard and Poor's Stock Reports and The Value Line Investment Surveys available during April, 1976.

## GRUMMAN CORPORATION

**SUMMARY:** The company is a leading supplier of military aircraft for the U.S. Navy. Large deficits were recorded in 1972 and 1971 because of cost overruns on the F-14 aircraft. Substantial diminution of F-14 aircraft write-downs led to worthwhile earnings recovery in 1973 and 1974. Initial F-14 profits resulted in moderate earnings progress in 1975. Full year F-14 profits and a pick-up in commercial program profitability are expected to produce a further worthwhile earnings advance in 1976.

**SALES:** Based on a preliminary report, sales and other income for 1975 advanced 19.5% from that of the preceding year. The largest part of the rise reflected increased Government funding for the F-14 aircraft. Shipments of Gulfstream II commercial jets to foreign customers were also up. These factors more than offset lower sales of commercial ground vehicles. The reduced shipments of high-margined commercial products and increased interest charges outweighed benefits from the higher volume, paring the gain in pretax income to 12%. After taxes at 43.1%, against 45.8%, net income rose 17.6%. Primary share earnings were \$3.08, up from \$2.65 (both adjusted for the January, 1976, 10% stock dividend). Results for 1974 were restated to exclude a \$1.72 a share gain on debenture exchange.

### Sales (and Pretax Profit Margins) by Product Line

	1972	1973	1974
Military Air.	548.7(-20.8%)	909.4(2.5%)	915.1(3.2%)
Gen. Aviation	63.0(4.8%)	63.4(14.6%)	78.7(10.1%)
Non-Aerospace	32.1(7.1%)	42.5(4.6%)	51.7(4.8%)
Data Process	33.6(2.6%)	36.3(4.8%)	47.5(3.4%)
Other	8.8(-37.9%)	16.5(-34.8%)	36.7(-13.0%)
Company	686.3(-16.2%)	1087.9(3.0%)	1129.8(3.3%)

**PROSPECTS:** Near Term--Revenues for 1976 are expected to advance 8%-10% from the \$1.35 billion of the prior year, in large part reflecting a further increase in F-14 billings. A rise is also expected in shipments of Gulfstream II commercial jets.

Margins are expected to widen on the higher volume, full year profitability of the F-14, and increased commercial product profitability. Thus, earnings are expected to advance 20%-30% from the \$3.08 a share (preliminary, adjusted) of 1975. A 10% stock dividend was paid January 30, 1976. Cash dividends have continued at \$0.15 quarterly following the stock distribution.

Long Term--Future earnings potential depends heavily on increased foreign orders for the F-14, A-6 and E-2C military aircraft.

**RECENT DEVELOPMENTS:** Iran has ordered 80 F-14 fighters at a total cost of \$1.85 billion with deliveries as follows: 2 in 1975, 22 in 1976, 36 in 1977 and 20 in 1978. Iran and Grumman are currently negotiating the ultimate disposition of \$28 million in sales commissions on the F-14.

In October, 1974, Grumman arranged \$200 million in new financing, including a four-year \$75 million term loan from an Iranian bank and a \$125 million standby credit through 1977 from American banks (secured by capital stock of all subsidiaries except Grumman American Aviation).

In December, 1975, the Pentagon said that it intended to authorize the sale by Grumman of four E-2C radar planes and support to Israel for \$210 million. Delivery is scheduled for September and October, 1978.

**FUNDAMENTAL POSITION:** Grumman Corp. operates as a holding company, with military aircraft made by Grumman Aerospace Corp., corporate jets and single engine craft by 81.2%-owned Grumman American Aviation Corp., and truck bodies, boats and yachts being produced by Grumman Allied Industries. The breakdown of sales and pretax income in 1975 was military aircraft/space systems 80.7% and 92.2%, general aviation 8.3% and 23.2%, commercial products (nonaerospace) 3% and 0.5%, EDP services 3.7% and a loss of 0.5%, and other 4.3% and a loss of 15.4%.

The most significant company program at present is the F-14 Navy fighter. Because of heavy program cost escalation, the company has written off a total of \$235 million (pretax) from inventories on the first 134 planes. A new contract permits profits on planes 135 to 184 if cost goals are not exceeded. Further production will be negotiated annually in a similar manner. Another important program is the A-6 series of carrier-based, all weather attack bombers. Several versions of the craft have been produced, including electronic countermeasure and tanker models and production is expected to continue for several years more. The E-2 Hawkeye early warning aircraft series resumed importance in 1973 following a new model transition to a C version from the former A and B models. Electronic countermeasure work is also performed on F-111 aircraft.

Space billings have declined appreciably with the completion of the Lunar Module program.

Backlog at year-end 1975 was \$1.79 billion, down from \$1.9 billion a year earlier.



**FINANCES:** The company has reached a settlement with the U. S. Navy concerning the F-14 fighter. Grumman produced a total of 134 aircraft from 1971 through mid-1975, incurring a total estimated pretax loss of \$235 million, of which \$5 million was expensed in the first half of 1975, \$10 million was expensed in 1974, \$15 million in 1973, \$140 million in 1972, and \$65 million in 1971. From mid-1975 to mid-1976 Grumman will produce another 50 aircraft under a new fixed-price-incentive contract with a target cost of \$281 million. If the target is met Grumman will earn a pretax profit of \$25 million. Any cost overruns will diminish profits on a sliding scale. If costs exceed \$325 million there will be no profit and Grumman will bear any losses beyond that point. Subsequent procurement will be negotiated annually on a similar basis.

#### Grumman Corporation Income Statistics

Year Ended Dec. 31	Net Sales	Oper. Income	Net Income	EPS
1975	1,350	--	23	3.08
1974	1,112	48	29	3.90
1973	1,082	54	16	2.26
1972	683	-88	-70	-9.33
1971	799	-9	-17	-2.35
1970	993	67	20	2.64

#### Balance Sheet Statistics

Dec. 31	Gross Prop.	Capital Expend.	Inven- tories	--Current-- Assets	Liabs.	Long Term Debt	Share- hldrs. Equity
1975	---	--	248	397	154	210	146
1974	281	17	182	329	156	156	126
1973	269	9	103	237	138	112	94
1972	257	10	105	261	165	140	67
1971	255	16	109	237	132	88	139
1970	253	25	117	252	127	85	167

## MCDONNELL DOUGLAS

**SUMMARY:** The company is the leading factor in fighter aircraft for the U.S. military and also produces commercial jetliners, missiles and space systems. A sharp earnings decline occurred in 1975, reflecting downward revisions of rates of profit accrual and increased program costs. In 1976, sharply increased military sales and absence of a strike should lead to at least moderate earnings recovery. Continuing declines in commercial jet sales, however, diminish prospects thereafter.

**SALES:** Based on a preliminary report, sales for 1975 rose 5.9% from those of the preceding year. Escalating billings for military aircraft, including the F-15, F-4 and A-4 fighters, outweighed reduced shipments of commercial jets to financially troubled U.S. airlines. Margins were restricted by downward revisions of rates of profit accrual on the DC-10 program, some DC-10 redesign costs, increased costs for aluminum extrusions, and effects of a 13-week strike at a large plant. Consequently, there was a 19.7% decline in net income. Earnings were equal to \$2.27 a share, compared with \$2.77 a year earlier.

**PROSPECTS:** Near Term--Sales for 1976 are expected to advance some 7%-10% from 1975's \$3.26 billion. Billings for both F-15 and F-18 fighters are expected to rise materially, reflecting Congressional authorizations. This factor and a further increase in missile sales should more than offset a large decline in commercial aircraft deliveries.

Margins are expected to widen on the higher volume and absence of strikes. Thus, earnings for 1976 should rise about 10%-15% from the \$2.27 a share (preliminary) of 1975. Dividends have been raised to \$0.11 quarterly, from \$0.10, effective with the April 5, 1976 payment.

Long Term--Depressed long lead time orders for commercial jets diminish future earnings prospects.

**RECENT DEVELOPMENTS:** In May, 1975, the Navy awarded a \$4.4 million contract jointly to MD and Northrop Corp. for preliminary work on the F-18 fighter. In December Congress voted to appropriate \$133 million to begin development of the plane. Eventual program billings could reach \$5.5 billion.

**FUNDAMENTAL POSITION:** McDonnell Douglas Corporation represents the 1967 union of McDonnell Corp., a leading manufacturer of military jet fighter aircraft and Douglas Aircraft, a prominent civilian jetliner concern. In 1974 some 44% of billings was derived from commercial aircraft, 37% from military aircraft, 14% from spacecraft and missiles, and 5% from automation, electronics and optics. The market breakdown was 54% Government and 46% commercial.

The most important military program in the future will be the F-15 Air Force fighter. The target price for the first wing of aircraft is \$1,839,981,000. If various development and cost 'milestones' are achieved, eventual program billings could exceed \$7 billion. The popular F-4 fighter and A-4 attack aircraft are still being produced.

The principal Douglas program at present is the DC-10 tri-jet airbus, with both the DC-8 and DC-9 having declined in importance. As of a recent date orders and options for the DC-10 totaled 254 with 212 having been delivered. Due to a marked rise in worldwide economic uncertainties, MD at October 1, 1974, reduced the DC-10 accounting pool (the number of aircraft from which costs will be averaged) to 400 from 500. Because the cost of making early DC-10s exceeded these estimated average costs, there remained in inventory at December 31, 1975 a total of \$691,779,000 in deferred costs (before estimated future tax benefits). Orders and options for the DC-9 jet were 868 with 899 delivered. Missile programs with future potential include the Harpoon antiship missile and the Dragon tank missile.

Firm backlog at year end 1975 was \$2.95 billion (29% commercial), down from \$3.2 billion a year earlier.

#### McDonnell Douglas Corporation Income Statistics

Year Ended Dec. 31	Net Sales	Oper. Income	Net Income	EPS
1975	3,255	---	85	2.27
1974	3,075	229	106	2.77
1973	3,002	241	129	3.26
1972	2,725	234	111	2.82
1971	2,069	175	80	2.10
1970	2,088	186	92	2.45

# Balance Sheet Statistics

Dec. 31	Gross Prop.	Capital Expend.	Inven- tories	--Current-- Assets Liabs.		Long Term Debt	Share- hldrs. Equity
1975	---	31	1,637	1,813	1,115	295	846
1974	671	35	1,659	1,807	1,349	104	772
1973	651	33	1,466	1,613	1,179	117	941
1972	626	23	1,309	1,462	1,119	146	834
1971	619	21	990	1,182	948	160	719
1970	606	73	672	912	740	168	627

## GENERAL DYNAMICS

**SUMMARY:** General Dynamics is one of the leading contractors of modern weapons systems and is well represented in such varied fields as shipbuilding, space, electronics and natural resources. Earnings for 1976 could approximate the sharply higher level reported for 1975, as expected lessening of strike costs offsets absence of Government claim reimbursements received in 1975.

**SALES:** Sales for 1975 advanced 9.7% from those of 1974, reflecting a sharp rise in marine construction work and increased billings for tactical missiles. Benefits from the higher volume, increased DC-10 subcontract profits, and sharply higher prices for natural resources outweighed strike-related costs and extended the gain in operating income to 20.9%.

The market breakdown was 61% Government and 39% commercial.

Funded backlog at year end 1975 was \$4.6 billion, up from \$3.51 billion a year earlier.

### Sales (and Pretax Profit Margins) by Product Line

	1972	1973	1974
Aerospace	750.9(2.3%)	701.5(3.7%)	731.4(4.9%)
Marine	320.7(1.0%)	368.9(2.0%)	533.1(1.2%)
Resources	230.9(5.9%)	270.6(7.6%)	334.7(8.4%)
Telecom.	142.3(5.1%)	193.8(5.5%)	233.9(5.2%)
Data/Elec.	94.6(-0.2%)	107.0(0.6%)	135.3(2.9%)
Company	<u>1539.4(2.7%)</u>	<u>1641.8(4.0%)</u>	<u>1968.4(4.4%)</u>

**PROSPECTS:** Near Term--Sales for 1976 are expected to rise slightly from 1975's \$2.16 billion, reflecting increased industrial demand for asbestos and communications devices and benefits from a prior rise in marine backlogs.

Margins are likely to widen on the higher volume and absence of strikes. Thus, despite the prospective absence of \$1.02 a share in Government claim reimbursements, earnings for 1976 could approximate the \$7.62 a share of 1975, which was before \$0.32 special credits. Early resumption of cash dividends is not expected.

Long Term--Cost performance on several large fixed-price contracts will heavily affect future profits.

RECENT DEVELOPMENTS: In January, 1975, GD was awarded a \$417.9 million fixed-price contract to build 15 test models of its F-16 fighter for the Air Force. If these models meet approval, some 650 craft worth over \$4 billion may eventually be purchased. In addition, some 350 planes may be bought by NATO countries.

GD has \$750 million in contracts to produce eight LNG tankers for Burmah Oil Co. Inventorized costs on the project at year-end 1975 were \$260 million, less \$239 million in progress payments. In January, 1976, GD agreed to become the equity investor in the LNG tankers due to difficulties of Burmah Oil in raising further financing.

The company has \$1.2 billion in contracts to produce 18 SSN 688-class submarines. Inventorized costs on the program at year-end 1975 were \$530 million, less \$383 million in progress payments. GD is currently negotiating with the Navy for substantial price adjustments. These price increases and improved yard productivity will be required to insure that the program does not record a loss.

#### General Dynamics Corporation Income Statistics

Year Ended Dec. 31	Net Sales	Oper. Income	Net Income	EPS
1975	2,160	196	81	7.62
1974	1,968	162	51	4.94
1973	1,641	124	40	3.84
1972	1,539	106	26	2.47
1971	1,868	103	20	1.96
1970	2,223	59	6	0.62

#### Balance Sheet Statistics

Dec. 31	Gross Prop.	Capital Expend.	Inven- tories	--Current-- Assets	Liabs.	Long Term Debt	Share- hldrs. Equity
1975	1,021	167	521	787	554	118	544
1974	921	108	469	717	557	94	451
1973	845	53	403	599	406	115	402
1972	819	62	462	636	455	129	363
1971	806	60	606	755	637	129	338
1970	757	49	603	734	583	132	316

## RAYTHEON COMPANY

**SUMMARY:** Formerly dependent on a limited number of Government contracts, this large electronics maker has diversified into the appliance, construction, and natural resources fields while maintaining its position as the premier producer of tactical missiles. Principal Government contracts include the Hawk and SAM-D missiles. Increased sales of missile systems and consumer appliances led to a worthwhile earnings gain in 1975. A further rise in shipments of appliances and various electronic products and greater cost efficiencies may make for additional moderate earnings progress in 1976.

**SALES:** Based on a preliminary report, sales for 1975 advanced 16.4% from those of the preceding year. The greatest portion of the gain came from increased shipments of military systems to foreign governments and a sharp rise in billings for Radaranges and freezers....Benefits from the overall higher volume and an improved product mix more than offset increased materials and R & D costs.

The market breakdown was 41% U. S. Government and 59% commercial and other.

Raytheon conducts an extensive R & D program; outlays totaled \$41.6 million in 1974, up from \$35.4 million in 1973. Prime areas of interest include micro-electronics and digital communications.

Backlog at year-end 1975 was \$2.46 billion (about 27% U. S. Government), down from \$2.65 billion a year earlier.

### Sales (and Pretax Profit Margins) by Product Line

	1972	1973	1974	1975
Electronics	819(4.9%)	941(4.5%)	1073(4.3%)	1280(5.1%)
Energy Svces.	365(2.9%)	332(5.1%)	507(5.9%)	600(5.0%)
Maj. Appls.	158(7.6%)	188(7.6%)	210(7.3%)	230(7.4%)
Other	125(8.6%)	130(9.3%)	139(8.8%)	155(8.4%)
<b>Company</b>	<b>1465(5.0%)</b>	<b>1591(5.4%)</b>	<b>1929(5.4%)</b>	<b>2245(5.5%)</b>

**PROSPECTS:** Near Term--Sales for 1976 may rise modestly from the \$2.25 billion of the prior year, reflecting increasing shipments of newer appliances and computer terminals.

Margins are expected to widen on benefits from the higher volume and cost efficiencies achieved in electronics, appliances and other operations. Thus, even with the prospective loss of DISC tax credits (due to pending legislative removal), earnings for 1976 may rise 7%-10% from the \$4.69 a share (preliminary) of 1975. The \$0.25 quarterly dividend is likely to be increased.

Long Term--Energy-related product areas offer the greatest future potential. Growing contributions from foreign military shipments, however, introduce an element of dependency on the state of foreign relations.

RECENT DEVELOPMENTS: In January, 1976, the company reported that it had received Hawk missile contracts totaling over \$101.4 million from the U. S. Marines and from Spain, Jordan, Kuwait and Taiwan.

#### RAYTHEON COMPANY INCOME STATISTICS

Year Ended Dec. 31	Net Sales	Oper. Income	Net Income	EPS
1975	2,245	---	70	4.69
1974	1,928	142	57	3.85
1973	1,590	115	46	3.03
1972	1,465	101	41	2.55
1971	1,347	98	38	2.48
1970	1,258	96	34	2.32

#### BALANCE SHEET STATISTICS

Dec. 31	Gross Prop.	Capital Expend.	Inven- tories	--Current-- Assets	Liabs.	Long Term Debt	Share- hldrs. Equity
1975	---	88	430	757	476	90	464
1974	423	72	457	692	430	84	403
1973	357	41	343	512	265	84	356
1972	321	32	295	449	213	81	336
1971	302	27	241	473	241	85	327
1970	277	47	225	404	275	36	265



### III. ANALYSIS

The purpose of this section is to provide an analysis of the areas for consideration of the Cutlass Missile Case.

1. Aside from in-house talent, what other alternative talent could Commander Scott have used to develop an evaluation of financial resources?

Depending on the nature of the source selection, there are several additional sources of talent that can be utilized. These include: DCAA/DCAS, service specialists, and acknowledged experts/consultants.

While the DCAA/DCAS team normally provides pre-award information to the contracting officer concerning financial capacity, it can be utilized in the source selection evaluation process. In most instances, the input provided on pre-award surveys is adequate to evaluate financial capacity only in terms of the contemplated contract rather than larger follow-on contracts. However, this generality depends on the talent, familiarity, and access to corporate financial data available to the DCAA/DCAS team.

The availability and talent of service specialists within each service varies, but normally individuals can be located who are providing support for procurement organizations, and who specialize in assessing the financial capability of Government contractors.

There are consulting groups as well as nationally recognized experts that could be engaged as part of the evaluation team. This approach

should be restricted to major acquisitions where this degree of talent and expenditure is justified.

Regardless of the talent chosen, the evaluation should include a view of current strength as well as near and long-term prospects. The output should include an evaluation report and a monitoring plan for each contractor so the project office can continue to assess the status of its contractor throughout the term of the contract.

2. How would a different situation (i.e. type of procurement, acquisition phase, or size of firm) affect the importance of this analysis?

Any evaluation must be concerned about the specific situation of the source selection in choosing a framework for analysis. The following situations reflect some of the concerns encountered in a financial analysis: type of procurement, acquisition phase, and size of firm.

Regardless of the financial risk (e.g. cost versus fixed-price contracts) to the contractor, the source selection authority should realize the primary objective of the selection/acquisition process is to receive value in either goods or services in return for tax dollars. The financial efficiency (i.e. the ability of a firm to plan and manage its financial resources to enhance total corporate performance) of the contractor affects this exchange regardless of the type of contract. In a cost-type contract the Government pays directly for these inefficiencies while in fixed-price contracts the Government either suffers the loss of value in the products received, or the contractor is motivated to reform the contract (i.e. changes or claims).

The phase of acquisition defines the length and intensity of the contemplated relationship as well as the probability of follow-on contracts.

The Source Selection Authority should be concerned with a contractor's financial efficiency both in the near and long term if follow-on contracts are planned (as in validation and FSD selection).

All characteristics of the corporate structure are important in evaluating a firm's financial capability. Some of the important characteristics an analyst would consider in addition to size are industry, market share, sales prospects, product and customer mix, leverage position, capitalization, liquidity, and profitability.

While a knowledge of the specific source selection is important in establishing a framework for evaluation, the analysis of financial strength of a prospective contractor is always necessary in making an important business decision such as the acquisition of a major weapon system.

3. What is your opinion of the meaningfulness of this analysis to the project manager or Source Selection Authority?

In reaching a multi-million dollar business decision, it is essential that the SSA consider the financial capability of potential contractors in a thorough and meaningful way. A detailed financial analysis can provide the necessary insight for the SSA's decision.

The project manager's interest in this area of concern is two-fold. First, he should insure that financial capability is included in the evaluation structure of the RFP and that a well-documented and detailed analysis is presented to the SSA. Secondly, the PM should continue after award to monitor the contractor's financial performance just as he monitors technical, schedule and cost performance. The basis for this monitoring should be the financial analysis presented to the SSA.

4. If you could have made an input to the RFP, would you have asked for any information from the offerors?

The following information would be useful in performing a detailed financial analysis:

- A. The latest annual report (10-K) submitted to the Securities Exchange Commission.
- B. Current year figures/projections not included in the annual report.
- C. Financial plans and projections of future (i.e. sales, capitalization, financing, etc.).
- D. Financial data of divisions.
- E. A point of contact for clarification of financial data submitted.

5. What other sources of business data would you have used?

Available sources of data include:

- A. Contractor input to the RFP.
- B. DCAA/DCAS files and pre-award surveys.
- C. Contract files.
- D. Security Exchange Commission annual (10-K) and quarterly (10-Q) reports.
- E. Business references (i.e. Standard and Poor's Stock Reports, Standard and Poor's Corporate Descriptions and The Value Line Investment Survey).

CUTLASS MISSILE CASE  
ANALYSIS OF FINANCIAL RESOURCES

- I. CONSIDERATIONS
- II. FRAMEWORK FOR ANALYSIS
- III. EVALUATION CRITERIA
- IV. RESULTS AND RECOMMENDATIONS

NOTE: The following analysis represents the author's evaluation of the four firms presented in the context of the case and limited to a reasonable preparation time. This analysis should not be viewed as a "school solution" but rather as one of several alternative methods to conduct an analysis.

## I. CONSIDERATIONS

In developing this analysis the following considerations were used:

<u>Considerations</u>	<u>Initial Contract</u>	<u>Follow-on Contracts</u>
-Type of Contract (financial risk)	Cost (low)	FPI/FFP (high)
-Term of Performance	Short	Long Term
-Relative Value of Contract (risk of cash flow problem)	Small (low)	Large (high)

Note: While this analysis is mainly concerned with the initial contract, potential problem areas in follow-on contracts will be addressed when considered significant.

## II. FRAMEWORK FOR ANALYSIS

The framework utilized evaluates five interrelated areas in analyzing total financial resources.

### SALES

- LEVEL AND GROWTH\*
- SALES BREAKDOWN
- SALES BACKLOG
- PROSPECTS

### PROFITS

- LEVEL AND GROWTH\* OF EPS
- NET INCOME LEVEL AND MARGINS

### CAPITAL EXPENDITURES (C.E.)

- LEVEL AND GROWTH\*
- RELATION TO:
  - DEPRECIATION
  - GROSS PROPERTY

### DEBT/LEVERAGE

- TOTAL DEBT/TOTAL ASSETS\*
- LONG TERM DEBT/L.T. DEBT AND OWNERS' EQUITY (DEBT RATIO)

### LIQUIDITY AND SOLVENCY

- LEVEL AND GROWTH\* OF CASH FLOW (C.F.)
- CURRENT RATIO TRENDS
- ALTMAN BANKRUPTCY TEST (Z-SCORE\*)

\*Components of each area noted above were considered as the primary elements in evaluation and scoring.

### III. EVALUATION CRITERIA

The following criteria were used in each analysis.

EVALUATION	+	0	-
<u>AREA</u>			
SALES			
-GROWTH	>10% yr.	5%-10% yr.	< 5% yr.
PROFITS			
-EPS GROWTH	>10% yr.	5%-10% yr.	< 5% yr.
C.E.			
-GROWTH	>10% yr.	5%-10% yr.	< 5% yr.
DEBT			
-DEBT/ASSETS	< 50%	50%-70%	> 70%
LIQUIDITY			
-C.F. GROWTH	>10% yr.	5%-10% yr.	< 5% yr.
-Z-SCORE	>3.00	1.81-3.00	< 1.81

WHY GROWTH? Growth was selected because without real growth in sales and parallel growth in interrelated areas, a corporation with large fixed costs will fail to maintain the confidence of its lenders, owners, vendors and customers. These four groups represent the firm's environment (i.e. debt, equity, and product markets).

NOTES: 1. The above criteria was selected as it represents the growth (10% yr.) needed to attain real growth after considering the effects of inflation.

2. Evaluations in any area may be altered by inconsistencies in trends or other factors.

OVERALL EVALUATION: In arriving at an overall evaluation, each area was considered in determining an evaluation score. The evaluations were related to the scoring scale as follows:

+	0	-
10-8	7-4	3-0



# GRUMMAN

<u>AREA</u>		<u>EVALUATION</u>
<u>SALES</u>		-
-GROWTH:	INCONSISTENT	
-LEVEL:	\$1.35 B (\$1.18 B - 1968)	
-BREAKDOWN:	86% GOVT (MIL. A/C 81%)	
-BACKLOG:	\$1.79 B (16 MONTHS)	
-PROSPECTS:		
-NEAR TERM:	INCREASE DUE TO F-14 (US AND FMS)	
-LONG TERM:	DEPENDENT ON MILITARY SALES	
	NO MAJOR PROGRAMS AFTER F-14	
<u>PROFITS</u>		-
-EPS GROWTH:	2% YR.	
-NET INCOME MARGINS:	1.8%	
<u>CAPITAL EXPENDITURES</u>		-
-GROWTH:	INCONSISTENT	
-% GROSS PROP.:	6%	
-C.E./DEPRECIATION:	1.1	
<u>DEBT</u>		-
-DEBT/ASSETS:	71% (56% - 1970)	
-DEBT RATIO:	59% (33% - 1970)	
<u>LIQUIDITY</u>		0
-CASH FLOW:	INCONSISTENT	
-CURRENT RATIO:	2.6 (1.8 - 1971)	
-Z-SCORE:	3.76	
<u>OVERALL EVALUATION</u>		2
While Grumman is in an acceptable near-term financial condition, its long-term health is based on developing new major programs and the uncertain state of FMS.		

# McDONNELL DOUGLAS

<u>AREA</u>		<u>EVALUATION</u>
<u>SALES</u>		0
-GROWTH:	12% YR.	
-LEVEL:	\$3.26 B	
-BREAKDOWN:	54% GOVT/COMMERCIAL A/C 41%	
-BACKLOG:	\$2.95 B (11 MONTHS)	
-PROSPECTS:		
-NEAR TERM:	DECLINING COMMERCIAL SALES WILL BE OFFSET BY INCREASING MILITARY SALES	
-LONG TERM:	LONG-TERM GROWTH IS DEPENDENT ON IMPROVED COMMERCIAL SALES (DC-10)	
<u>PROFIT</u>		-
-EPS GROWTH:	2% YR.	
-NET INCOME MARGIN:	2.5% (3.9%-1971)	
-OTHER:	FAILURE TO ATTAIN 400 SALES OF DC-10 (BREAK-EVEN QUANTITY) COULD RESULT IN LARGE LOSSES.	
<u>CAPITAL EXPENDITURES</u>		-
-GROWTH:	INCONSISTENT	
-% GROSS PROP.:	5%	
-C.E./DEPRECIATION:	.7 (.3 - 1971)	
<u>DEBT</u>		0
-DEBT/ASSETS:	62% (59% - 1970)	
-DEBT RATIO:	26% (20% - 1970)	
<u>LIQUIDITY</u>		-
-CASH FLOW:	-2% YR.	
-CURRENT RATIO:	1.6 (1.2 - 1970)	
-Z-SCORE:	2.6	
<u>OVERALL EVALUATION</u>		4
MDAC's near-term financial condition is sound, although the long-term condition is unclear due to uncertainties in commer- cial aircraft sales.		

# GENERAL DYNAMICS

<u>AREA</u>		<u>EVALUATION</u>
<u>SALES</u>		0
-GROWTH:	INCONSISTENT	
-LEVEL:	\$2.16 B	
-BREAKDOWN:	61% GOVT	
-BACKLOG:	\$4.56 B (25.2 MONTHS)	
-PROSPECTS:		
-NEAR TERM:	SOLID SALES BASE (F-16, 18 TRIDENT SUBS AND 5 LNG TANKERS)	
-LONG TERM:	PROSPECTIVE F-16 SALES OF 1000 UNITS DEPENDENT ON FMS AND US GOVT. SALES	
<u>PROFIT</u>		0
-EPS GROWTH:	INCONSISTENT (7.62 - 1975; 5.59 - 1966)	
-NET INCOME MARGIN	3.8% (1.1% - 1971)	
<u>CAPITAL EXPENDITURES</u>		+
-GROWTH:	28%	
-% GROSS PROP:	16% (8% - 1971)	
-C.E./DEPRECIATION:	3.1 (1.2 - 1971)	
<u>DEBT</u>		+
-DEBT/ASSETS:	55% (69% - 1970)	
-DEBT RATIO:	18% (30% - 1970)	
<u>LIQUIDITY</u>		+
-CASH FLOW GROWTH:	18% YR.	
-CURRENT RATIO:	1.4 (1.3 - 1970)	
-Z-SCORE:	2.98	
<u>OVERALL EVALUATION:</u>		8
G.D.'s financial condition is evaluated as strong in both the near and long term.		

# RAYTHEON

## AREA

## EVALUATION

### SALES

+

-GROWTH: 14% YR.  
 -LEVEL: \$2.25 B  
 -BREAKDOWN: 41% GOVT.  
 -BACKLOG: \$2.46 B (12 MONTHS)  
 -PROSPECTS: DIVERSIFICATION PROVIDES A SOLID SALES  
 BASE FOR NEAR AND LONG TERM

### PROFIT

+

-EPS GROWTH: \$17.5% YR.  
 -NET INCOME MARGIN: 3.2% (2.5% - 1971)

### CAPITAL EXPENDITURES

+

-GROWTH 30%  
 -% GROSS PROP.: 17% (7% - 1971)  
 -C.E./DEPRECIATION: 1.9 (1.0 - 1971)

### DEBT

+

-DEBT/ASSETS: 55% (54% - 1970)  
 -DEBT RATIO: 17% (12% - 1970)  
 -TOTAL ASSETS: \$1.03 B - 1975 (\$.58 B - 1970)

### LIQUIDITY

+

-CASH FLOW GROWTH: 15.5% YR.  
 -CURRENT RATIO: 1.6 (1.5 - 1970)  
 -Z-SCORE: 4.08

### OVERALL EVALUATION

10

Raytheon is considered in excellent financial condition in view  
 of broad diversification and sound management policies.

#### IV. RESULTS AND RECOMMENDATIONS

	<u>SALES</u>	<u>PROFIT</u>	<u>C.E.</u>	<u>DEBT</u>	<u>LIQ.</u>	<u>OVERALL EVALUATION</u>
<u>RANKING</u>						
RAYTHEON	+	+	+	+	+	10
GENERAL DYNAMICS	0	0	+	+	+	8
McDONNELL	0	-	-	0	-	4
GRUMMAN	-	-	-	-	0	2

#### RECOMMENDATION:

ALTHOUGH RAYTHEON AND GENERAL DYNAMICS POSSESS THE STRONGEST FINANCIAL POSITIONS, ALL CONTRACTORS APPEAR FINANCIALLY RESPONSIBLE WITH REGARD TO THE INITIAL CONTRACT. IN THE CASE OF GRUMMAN AND McDONNELL DOUGLAS THIS SHOULD BE CONFIRMED BY A THOROUGH PREAWARD SURVEY. ADDITIONALLY, CLOSE MONITORING OF GRUMMAN AND McDONNELL DOUGLAS SHOULD BE REQUIRED DURING THE NEAR TERM AND PRIOR TO AWARD OF ANY FOLLOW ON CONTRACTS.

#### IV. LIST OF REFERENCES

##### USED IN DEVELOPMENT OF CASE (ATTACHMENT A):

Standard and Poor's Stock Reports, New York: Standard and Poor's Corporation, April 1976.

The Value Line Investment Survey, New York: Arnold Bernhard and Co., Inc., April 1976.

##### ADDITIONAL REFERENCES USED IN PROJECT COMPLETION:

Business Periodicals Index, New York: T. H. Wilson Co., 1975 and March 1976.

Annual Reports (10-K) to Security Exchange Commission, Washington, D. C.: Security Exchange Commission Public Reference Library.

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DEFENSE SYSTEMS MANAGEMENT SCHOOL

STUDY TITLE:

FINANCIAL ANALYSIS IN SOURCE SELECTION: A CASE STUDY

STUDY PROJECT GOALS:

The goal of this project is to motivate discussion and understanding of the role of financial analysis in the source selection process and to provide a medium for the practical application of analysis techniques.

STUDY REPORT ABSTRACT:

The purpose of this project has been to explore the role of financial analysis as a decision consideration in source selection and to develop a case situation which would motivate discussion and understanding of that role. Participation in a situation of this nature provided the experience and insight necessary to develop a realistic teaching vehicle for the practical application of analysis techniques as well as a framework for the discussion of the role of financial analysis in the source selection process.

KEY WORDS: FINANCIAL ANALYSIS SOURCE SELECTION

NAME, RANK, SERVICE

D. S. RAMELLI, LT., USN

CLASS

76-1

DATE

11 MAY 1976



## EXECUTIVE SUMMARY

The purpose of this project has been to develop a case situation which would motivate a discussion and understanding of the role of financial analysis as a decision consideration in the source selection process. Although the case developed is fictional, my recent participation in a situation of this nature helped to create a case that is a realistic environment for the practical application of analysis techniques. The financial data provided in the case has been extracted from public sources and represents actual financial statistics of well-known aerospace defense contractors. The tasks as well as the areas for consideration within the case represent real-life concerns which potential project management personnel may face in the source selection process.

This case was designed for use by the Defense Systems Management School and was specifically intended for use by individuals developing intermediate skills in financial analysis. The approach taken in this case assumes that the reader is familiar with basic accounting techniques and fundamental theories in corporate finance. While the financial analysis in this case does present an acceptable framework for evaluating corporate health, this framework is not suggested for all situations. Each situation should dictate what important financial characteristics (i.e. sales, profit, leverage, liquidity, etc.) should be analyzed and what framework or analytical approach is appropriate in viewing total corporate health.

## I. INTRODUCTION

The general purpose of this paper and the effort preceding it have been to explore the role of financial analysis as a decision consideration in the source selection process. The specific goals of this project were to develop a teaching vehicle which would motivate discussion and understanding of the role of financial analysis in source selection as well as to provide a medium for the practical application of analysis techniques.

The medium selected to achieve these goals was a case study representing a fictional yet true-to-life source selection situation. The firms chosen for this fictional situation are well known aerospace corporations, and the data provided was obtained solely from public sources. My recent participation in a situation of this nature provided me with the experience and insight necessary to feel confident that the following case represents a realistic setting for the discussion of the role of financial analysis in the source selection process.

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**KEY WORDS:** FINANCIAL ANALYSIS      SOURCE SELECTION  
MATERIEL ACQUISITION      CONTRACTOR EVALUATIONS  
DECISION-MAKING      CONTRACTOR DATA

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